UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,599	03/29/2004	Fumio Nakajima	SON-2973	9712

23353 7590 05/14/2007	EXAMINER
RADER FISHMAN & GRAUER PLLC	CUTLER, ALBERT H

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after t he mailing date of this com munication, even if timely filed, may re duce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>29 March 2004</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-6</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-6</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>29 March 2004</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1.   This office action is responsive to application 10/810,599 filed on March 29,

2004. Claims 1-6 are pending in the application and have been examined by the

examiner.

Priority

2.   Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which

papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4.   The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

      1.   Determining the scope and contents of the prior art.
      2.   Ascertaining the differences between the prior art and the claims at issue.
      3.   Resolving the level of ordinary skill in the pertinent art.
      4.   Considering objective evidence present in the application indicating obviousness or nonobviousness.

5.   Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanji

et al.(US 2002/0067414) in view of Tone(US 6,404,512).

Consider claim 1, Tanji et al. teach:

A gamma correction device(34, figure 1) in an image capturing apparatus(figure 1), the gamma correction device(34) performing gamma correction on a video signal(paragraph 0055) from an image capturing element(CCD, 10, figure 1) on the basis of at least one correction curve(figures 2a, 2b, and 2c) having a predetermined input-output characteristic(paragraph 0063).

However, Tanji et al. do not explicitly teach said at least one correction curve has a slope of 5.0 or less at the origin such that a corrected video signal conforms to film properties.

Tone is similar to Tanji et al. in that Tone uses a CCD(55, figure 1) to pick up images, and a gamma correction circuit(119, figure 2) to perform gamma correction on the images picked up by the CCD(column 6, line 58 through column 7, line 9, column). Tone also similarly teach of using gamma correction curves(column 8, line 53 through column 9, line 37). Tone likewise teaches that the gamma correction curve is approximated using linear segments(column 8, lines 64-67).

However, in addition to the teachings of Tanji et al., Tone teaches that the at least one correction curve has a slope of 5.0 or less at the origin such that a corrected image signal conforms to film properties(See figures 18 and 19, column 13, line 28 through column 10, line 67. In one embodiment, a user can enter gamma curve information, as shown in figure 18, corresponding to slope information, as shown in figure 19, to control the linear segments of an approximated gamma curve. Because the user enters the information, the gamma curve can have any slope at the origin. The

current gamma curve has a slope of 8/10, as shown in figure 19, which is less than 5.0.

The flexibility of allowing a user to enter different gamma curve properties is important

because different gamma curves are needed to present the image data in different

applications, such as scanning and printing(column 1, lines 54-63).).

Therefore, it would have been obvious to a person having ordinary skill in the art

at the time of the invention to include a mode for manually setting the slope of a gamma

curve to different values in order to conform to different applications, such as film

properties as taught by Tone in the gamma correction device taught by Tanji et al. for

the benefit of reducing the size of the stored data set required for gamma correction,

allowing gamma curves to be easily modified, and permitting the adjustment of gamma

characteristics based on different applications and output devices(Tone, column 1, lines

54-67).

Consider claim 2, and as applied to claim 1 above, Tanji et al. teach of using a

linear approximation for a gamma curve(see figures 2b and 2c, claim 1 rationale).

However, Tanji et al. do not explicitly teach that the slope of said at least one correction

curve at the origin is settable based on various conditions.

Tone teaches that the slope of said at least one correction curve at the origin is

settable based on various conditions(The slope is settable based on the input values

from the user, figures 18 and 19, column 13, line 28 through column 10, line 67. This

includes the slope at the origin P0(00,00) : 08/10 as shown in figure 19. This way a

user can set the slope to conform to specific applications(i.e. various conditions),

column 1, lines 54-67.).

Consider claim 3, and as applied to claim 1 above, Tanji et al. teach of using a

linear approximation for a gamma curve(see figures 2b and 2c, claim 1 rationale), and

that the at least one correction curve comprises a plurality of correction curves having

different slopes(See figure 2b. The correction curve comprises a plurality of segments

forming a plurality of curves having different slopes, paragraphs 0063-0070.).

However, Tanji et al. do not explicitly teach that the different slopes are

selectable based on various conditions. Tone teaches that the different slopes are

selectable based on various conditions(The slope is settable based on the input values

from the user, figures 18 and 19, column 13, line 28 through column 10, line 67. This

includes the slope at the origin P0(00,00) : 08/10 as shown in figure 19. This way a

user can set the slope to conform to specific applications(i.e. various conditions),

column 1, lines 54-67.).

6.   Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanji et

al. in view of Sakamoto(US 6,876,382).

Consider claim 4, Tanji et al. teach:

A gamma correction device(34, figure 1) in an image capturing apparatus(figure

1), the gamma correction device(34) performing gamma correction on a video

signal(paragraph 0055) from an image capturing element(CCD, 10, figure 1) on the

basis of at least one correction curve(figures 2a, 2b, and 2c) having a predetermined

input-output characteristic(paragraph 0063),

wherein said at least one correction curve(figure 2b and 2c) comprises a

composite of a correction curve segment lying from the origin to a predetermined level

of an input signal(See figures 2b and 2c. A segment of the correction curve lies from

the origin to a predetermined point where the next segment begins.), and another

correction curve segment lying above the predetermined level of the input signal(A

second segment of the correction curve extends from the first point where the first

segment ended, to a second point where a third segment begins, see figures 2b and

2c.) such that the corrected video signal conforms to film properties(The corrected video

signal conforms to film properties because the video signal has already been corrected

to eliminate errors in color reproduction caused by the CCD, and conform to ideal

photographing performance, paragraph 0062.), and both correction curve segments are

continuously combined(Both segments are connected at a first point, as illustrated in

figures 2B and 2C.) and have the same slope at the predetermined level of the input

signal(Both segments correspond to the same slop of the non-linear curve, as shown in

figure 2B. Furthermore, a predetermined level of the input signal can be at any level,

and thus, at a predetermined level such as a level midway between the first and second

connecting points, and lying on the second curve segment, a first curve segment(i.e. the

portion of the curve up to that point), and a second curve segment(i.e. the portion of the

curve from that point on) have the same slope at that predetermined level. The gamma

correcting function naturally applies interpolation when an image signal falls between two sampling points, so a gamma correction curve in reality is simply a plurality of connecting line segments(paragraph 0063), and it is understandable that through this approximation interpolation, two connected line segments of the gamma correction curve can have the same slope.).

However, Tanji et al. do not explicitly teach that the curve segment extending from the origin is such that a corrected video signal conforms to a cathode-ray tube monitor.

Sakamoto is similar to Tanji et al. in that a camera(10, figures 1 and 2) captures image data corresponding to gamma characteristic curves(figure 6, column 7, lines 47-49).

However, in addition to the teaching so Tanji et al., Sakamoto teaches of providing coefficients for different display devices such as cathode-ray tube displays in order to properly transform the image data, column 7, line 4 through column 8, line 56. Data is transformed using gamma characteristics of the input and output devices, such as ITU-709, column 8, lines 46-56.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to perform gamma correction on image signals so that the gamma conforms to cathode-ray tube monitors as taught by Sakamoto on the gamma curve segment extending from the origin as taught by Tanji et al. for the benefit of being able to display desired images having correct color reproduction regardless of the status of the display(Sakamoto, column 1, lines 15-65).

7.   Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Tanji et al. in view of Sakamoto as applied to claim 4 above, and further in view of Tone.

Consider claim 5, and as applied to claim 4 above, Tanji et al. teach of using a

linear approximation for a gamma curve(see figures 2b and 2c, claim 1 rationale).

However, the combination of Tanji et al. and Sakamoto does not explicitly teach that the

predetermined level of the input signal is settable based on various conditions.

Tone is similar to Tanji et al. in that Tone uses a CCD(55, figure 1) to pick up

images, and a gamma correction circuit(119, figure 2) to perform gamma correction on

the images picked up by the CCD(column 6, line 58 through column 7, line 9, column).

Tone also similarly teach of using gamma correction curves(column 8, line 53 through

column 9, line 37). Tone likewise teaches that the gamma correction curve is

approximated using linear segments(column 8, lines 64-67).

Tone teaches that the predetermined level of the input signal is settable based

on various conditions(The predetermined level is settable based on the input values

from the user, figures 18 and 19, column 13, line 28 through column 10, line 67. This

way a user can set specific gamma curves to conform to specific applications(i.e.

various conditions), column 1, lines 54-67.).

Therefore, it would have been obvious to a person having ordinary skill in the art

at the time of the invention to include a mode for manually setting the predetermined

levels of a gamma curve to different values in order to conform to different applications,

as taught by Tone in the gamma correction device taught by the combination of Tanji et

al. and Sakamoto for the benefit of reducing the size of the stored data set required for

gamma correction, allowing gamma curves to be easily modified, and permitting the

adjustment of gamma characteristics based on different applications and output

devices(Tone, column 1, lines 54-67).

Consider claim 6, and as applied to claim 4 above, Tanji et al. teach at least one

correction curve comprises a plurality of correction curves having different

predetermined levels of the input signals(See figure 2b. The correction curve comprises

a plurality of segments forming a plurality of curves having different predetermined

levels, paragraphs 0063-0070.). However, the combination of Tanji et al. and Sakamoto

does not explicitly teach that the predetermined levels are selectable based on various

conditions.

Tone is similar to Tanji et al. in that Tone uses a CCD(55, figure 1) to pick up

images, and a gamma correction circuit(119, figure 2) to perform gamma correction on

the images picked up by the CCD(column 6, line 58 through column 7, line 9, column).

Tone also similarly teach of using gamma correction curves(column 8, line 53 through

column 9, line 37). Tone likewise teaches that the gamma correction curve is

approximated using linear segments(column 8, lines 64-67).

Tone teaches that the predetermined levels of the input signal are settable based

on various conditions(The predetermined levels are settable based on the input values

from the user, figures 18 and 19, column 13, line 28 through column 10, line 67. This

way a user can set specific gamma curves to conform to specific applications(i.e. various conditions), column 1, lines 54-67.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to include a mode for manually setting the predetermined levels of a gamma curve to different values in order to conform to different applications, as taught by Tone in the gamma correction device taught by the combination of Tanji et al. and Sakamoto for the benefit of reducing the size of the stored data set required for gamma correction, allowing gamma curves to be easily modified, and permitting the adjustment of gamma characteristics based on different applications and output devices(Tone, column 1, lines 54-67).
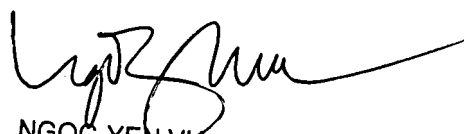
Conclusion

8.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Perumal, Jr. et al.(US 5,710,827) teaches of combining multiple gamma curves to form a composite curve(see figure 6).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert H. Cutler whose telephone number is (571)-270-1460. The examiner can normally be reached on Mon-Fri (7:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc-Yen Vu can be reached on (571)-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AC

NGOC-YEN VU
SUPERVISORY PATENT EXAMINER